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VOCAL GESTURES OF SHARED SYLLABLE TYPES IN CARDINALS. F. Goller* and R. A. Suthers. School of Medicine, Indiana University, Bloomington, IN 47405, USA.

In songbirds, songs are learned by memorization and copying of tutor song and such copies can be remarkably accurate. However, it is not known whether acoustic similarity is generated by equally similar vocal gestures. We studied syringeal and respiratory motor patterns of syllable types shared by up to 6 individual cardinals (*Cardinalis cardinalis*) by recording bilateral bronchial airflow, subsyringeal air sac pressure, and acoustic output. The differential contribution of the two sides of the syrinx to individual syllable types (high frequency generated on the right, low frequency on the left) is present in all cardinals. The most frequently shared syllable types are generated predominantly in the left syrinx. Although the duration of syllables may be somewhat variable, the patterns of air sac pressure and bilateral airflow are remarkably similar between different individuals. Small differences can be found in the presence or duration of brief airflow through the right side of the syrinx. Less accuracy in the acoustic copy is generally accompanied by lower similarity in the motor patterns. These results suggest that copying song syllables is achieved by precise copying of motor gestures. They further indicate that physical limitations may put constraints on the combination of motor gestures that can generate a given sound. Supported by NIH, NSF, and APART.